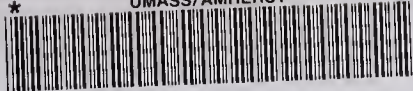


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**Massachusetts
Technology
Development
Corporation**



**Annual Report
1985**

GOVERNMENT DOCUMENT
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Report of the Chairman and President

The Massachusetts Technology Development Corporation (MTDC) completed its sixth year of investment operations on June 30, 1985 as a unique instrument for economic development based upon a public/private partnership. Among MTDC's major accomplishments:

- Pacer Systems, Inc. of Burlington, in which MTDC made a 1981 investment, successfully placed its securities on the British Unlisted Securities Market in June 1985.
- MTDC realized gains of \$130,227 in fiscal '85 on its equity investments. These gains, together with a portion of revenues from interest and royalties earned, enabled the Board of Directors to transfer \$135,000 to the investment fund for additional equity investments. The cumulative gains on equity investments since 1980 total \$792,561, while cumulative losses on both debt and equity investments are \$166,384.
- MTDC portfolio companies have created over 1,300 jobs, representing over \$30 million in annual payroll and generating estimated annual tax revenues of \$10 million to the Federal Government and \$2 million to the Commonwealth. From 1980 through the end of fiscal '85, MTDC invested in thirty-three companies, of which two are no longer in business, and MTDC sold its interest in three others.
- MTDC's cumulative investments since 1980 total over \$7 million, and have leveraged \$5.26 of private capital from co-investors and lending institutions for every \$1.00 from MTDC at the time of its initial investment. When subsequent rounds of investment and lending are included, the total leverage factor has risen to \$10.98 for every \$1.00 from MTDC.

- In fiscal '85 MTDC added four companies to its portfolio and provided additional financing to four of its existing portfolio companies. These investments increased the number of MTDC portfolio companies applying new technology to the fiber optics and factory automation industries. In addition, these investments added companies that diversified the portfolio into the areas of chemical analysis of hazardous and toxic wastes, production of new packing used in high-performance liquid chromatography, and innovative software using computer graphics and databases to produce geographic analyses of markets and resources.
- MTDC continued to work closely with entrepreneurs through its Management Assistance and Financial Packaging Programs, enabling early-stage technology companies to better present themselves to the private investment community, often resulting in investment by the private sector without the need for MTDC to co-invest. During fiscal 1985 MTDC provided ongoing technical assistance to sixty-two companies, of which five achieved substantial private-sector financing.

These accomplishments have taken place in an environment where private venture capital investments in technology firms had slowed when compared to fiscal '84 and '83 levels. As a result, an increasing number of technology-based companies have sought assistance from MTDC for their second and third rounds of financing.

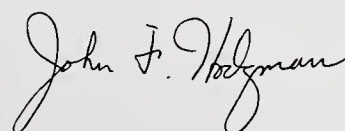
During fiscal 1985 Massachusetts-based small technology firms achieved a national leadership position by winning multiple awards under the Small Business Innovation Research Program (SBIR). Many of these firms are beginning to seek financing for the commercialization of the products developed through their research and are likely to come to MTDC for assistance in fiscal '86 and '87.

Finally, we would like to recognize the role of MTDC Board Members in the success of the Corporation. The Board of Directors plays a crucial part in setting investment policy and in reviewing and approving recommendations from the staff for specific investments.

During the past fiscal year, Senator John F. Kerry, Dr. Robert C. Seamans and Mr. Orie L. Dudley resigned from the Board of Directors after several years of dedicated public service to MTDC and the Commonwealth. Replacing these Directors, the Governor appointed Mr. Ronnie Payne, Dr. Alden Raine and Dr. David Wormley. In addition, the Governor reappointed Mrs. Phyllis Sherry Swersky and Joseph S. Landiorio, Esquire. MTDC and the Commonwealth are very grateful for the willingness of these individuals to give of their time, experience and skill to this endeavor.



Howard N. Smith
Chairman



John F. Hodgman
President

1985 Activities

Geographic Systems, Inc.

Andover

In December 1984 MTDC made an investment of \$250,000 in Geographic Systems, Inc. (GSI). Joining MTDC as co-investor was a leading private venture capital firm.

GSI was founded in 1980 for the purpose of providing to business a series of integrated software for thematic mapping of statistical data. Called "geomarketing," GSI's computerized cartography enables a firm to make strategic decisions regarding sales presentation, sales territory alignment, store location and route optimization.

The four elements of GSI's geomarketing system answer completely a company's locational questions. GEOMAP and GEOBUILD are user-friendly program generators and utility packages that run atop a computer graphics software driver to generate maps. GEOFILES are sets of 32 cartographic files which allow the drawing of exact boundaries for maps ranging from zip code maps to national and international boundaries. GEOMODELS use the techniques of econometric modeling to simulate the results of certain locational decisions.

Being device and database independent, GSI's decision support software package allows the user maximum flexibility in working with pre-existing hardware and data sources in a client company. This independence also allows GSI to provide unbiased recommendations to prospects and customers as to what hardware and database configurations would best suit their needs.

Cambridge Analytical Associates, Inc.

Boston

In March 1985 MTDC invested \$200,000 in Cambridge Analytical Associates, Inc. (CAA). Co-investing \$350,000 was a group of professional private investors.

CAA offers state-of-the-art analytical and advisory services to solve the chemical problems of industry and government through the accurate measurement and safe management of hazardous waste.

The concern is unique in the hazardous waste testing/consulting industry since it provides complete and comprehensive full-service support, beginning with chemical analysis of hazardous waste samples, through data interpretation to advisory consulting.

CAA combines the skills of qualified, experienced analysts with a modern, well-equipped laboratory to provide a cost-effective means of obtaining environmental data needed for compliance with the ever-increasing number of regulations and registration requirements demanded by EPA, FDA, OSHA and other government agencies.

The firm is utilizing these recently-invested funds to expand its current business areas and to develop its new product line of innovative column packing used in High-Performance Liquid Chromatography and designed to meet the needs of the Life Sciences marketplace.

Fotec, Inc.

Charlestown

Fotec received \$150,000 from MTDC in a second round of financing closed in April 1985. Co-investing \$250,000 in this second round was a prominent private venture capital firm.

Fotec designs and manufactures a line of low-cost instruments for testing all types of fiber optic communication systems. These instruments measure the power of light being transmitted through fiber optic components, or systems, which transmit power in the form of light rather than electricity. Since the light is invisible to the human eye, it must be converted to proper units for measurement.

The company's unique technology uses highly photosensitive detectors and advanced circuitry to convert the light signal into an electrical current, which is presented to the user on a digital display. Optical power measurement instruments are particularly important now that fiber optic technology is the medium of choice in telecommunications.

Since MTDC's original investment of \$175,000 in the spring of 1983, Fotec has moved to larger quarters in the Schrafft Center in Charlestown. The company now numbers among its local customers DEC, Wang, Telco Systems and Fibronics.

Wakefield Software Systems, Inc.

Woburn

In May 1985 MTDC made a \$250,000 investment in Wakefield Software Systems, Inc. (WSSI), a leading producer of turnkey bar code data collection systems.

The WSSI/Wand 2S proprietary bar code data collection software product, designed to run on the IBM Series/I minicomputer, provides on-line, real-time data entry at the point of work and dynamic interfaces with the corporate mainframe or other host computer.

The result is immediate feedback to the shop floor on the status of the manufacturing process flow and daily reporting to management on inventory, labor and shop floor controls, materials management, quality assurance and shipping. Module applications successfully installed include Time and Attendance, Labor Reporting, Materials Reporting, Manufacturing Process Flow, and Lot Traceability and Package Tracking.

Bar code data collection is now recognized as one of the most accurate means of collecting data and has been designated by the Department of Defense and the Health Care Products Council as the industry standard for data collection. Consequently, Wakefield's position is unique as the only organization with a substantial installed base in a market presently experiencing explosive growth.

Wakefield currently numbers among its clients such prestigious names as TRW, Gillette and Westinghouse.

AMDEV, Inc. Haverhill

AMDEV'S technical breakthroughs in electrode core technology have allowed it to create products which are extraordinarily fast and extremely accurate for the care of critically and chronically ill patients. The company manufactures and markets bio-medical instruments and reagents for the measurement of electrolytes and blood gases.

AMDEV is already shipping LYTENING 1, a free-standing electrolyte analyzer, for national distribution to the U.S. Alternative Sites markets (doctors' offices, commercial laboratories and clinics).

Since MTDC's \$250,000 investment in December 1983, AMDEV has moved its existing products from prototype to production stage and has sold over 500 units. Because of this considerable

progress, in May 1985 MTDC converted its \$46,800 note to common stock in the company. Earlier in 1985 AMDEV engaged in a \$350,000 financing with a group of professional private investors.

Icon Corporation Cambridge

A second round of financing for Icon Corporation was provided in May 1985 by MTDC and a group of professional private investors. MTDC's \$158,000 investment will allow the concern to build inventory, develop new products and meet working capital needs. MTDC's initial \$150,000 investment was made in December 1980.

Icon designs and manufactures programmable computer-numerically-controlled (CNC) incremental motion systems for a wide range of equipment and machine tool applications. The systems move a variety of components in prescribed patterns at varying speeds with a very high degree of accuracy and are of particular interest to companies interested in automating their manufacturing and assembly operations.

Icon also supplies separate CNC controls and drives, motors, and XY or rotary positioning tables. The company has successfully combined these various components into an integrated machine to accomplish automated liquid dispensing, primarily for the electronics industry.

Telphi Systems, Inc. Bedford

MTDC's participation in an additional round of financing for Telphi Systems was completed in June 1985.

Telphi designs, manufactures and sells telecommunications equipment which enhances the capabilities of large Private Branch Exchange (PBX) systems. The stand-alone equipment includes proprietary application software, an operating system, and microprocessor-driven circuit boards.

The company's product is distinguished by ease of use on the customer's part, fast response time (2 seconds), and integration of a variety of functions which are not otherwise available in a single product.

Since MTDC's initial investments of \$250,000 and \$28,572, Telphi has undergone management reorganization and is currently making substantial progress. MTDC's latest \$100,000 investment, combined with \$600,000 provided by a group of professional private investors, will help to bolster that progress.

Chromatic Technologies, Inc. Franklin

In June 1985 Chromatic Technologies, Inc. (CTI) completed a major financing package with MTDC and the William E. Wright Company of West Warren Massachusetts. MTDC committed \$250,000 of debt funds, and the Wright Company provided \$750,000 of equity funds.

Chromatic is a leading manufacturer of premium quality fiber optic cables, cable assemblies and interconnection systems.

The company is presently installing the most modern production equipment to ensure the highest quality in its products and to keep its record of timely delivery intact. Moreover, this equipment will give CTI the ability to handle all fiber types from single mode to large core PCS, and to protect the fibers with a wide variety of materials.

Financial Statements

Balance Sheets, June 30, 1985 and 1984

ASSETS	NOTES	1985	1984
GENERAL SUPPORT:			
Cash and cash equivalents		\$ 144,406	\$ 170,341
Interest receivable.		55,740	48,997
Other receivable—sale of stock		130,227	
Prepaid expenses and deposits		6,693	9,275
Leasehold improvements and office equipment—at cost less accumulated depreciation and amortization of \$44,781 in 1985 and \$26,965 in 1984	2	43,586	51,588
Restricted cash and cash equivalents	5	351,437	316,437
Total general support.		<u>732,089</u>	<u>596,638</u>
RESTRICTED FOR INVESTMENT PROGRAMS:			
Cash and cash equivalents	2, 3	1,417,047	1,579,175
Grants receivable	3	800,000	800,000
Investments	2, 3	5,473,569	4,376,441
Total restricted		<u>7,690,616</u>	<u>6,755,616</u>
TOTAL ASSETS		<u>\$8,422,705</u>	<u>\$7,352,254</u>
LIABILITIES AND FUND BALANCES			
GENERAL SUPPORT:			
Accrued liabilities		\$ 52,850	\$ 45,049
Fund balance		679,239	551,589
Total general support.		732,089	596,638
RESTRICTED FOR INVESTMENT PROGRAMS—Fund balance.	3	<u>7,690,616</u>	<u>6,755,616</u>
TOTAL LIABILITIES AND FUND BALANCES		<u>\$8,422,705</u>	<u>\$7,352,254</u>

See notes to financial statements.

**Statements of Revenues, Expenditures, and Changes in Fund Balances
for the Years Ended June 30, 1985 and 1984**

		1985		1984	
		GENERAL SUPPORT	RESTRICTED FUNDS	GENERAL SUPPORT	RESTRICTED FUNDS
	NOTES				
REVENUES:					
Appropriation—Commonwealth of Massachusetts		\$ 148,700		\$ 175,000	
Grants—Commonwealth of Massachusetts	3		\$ 800,000		\$ 800,000
Gains on equity investment	2	130,227		647,334	
Interest earned	2	528,185		414,011	
Royalties earned		38,920			
Miscellaneous		3,508		3,395	
Total revenues		849,540	800,000	1,239,740	800,000
EXPENDITURES—General support	4	586,890		523,874	
REALIZED LOSSES ON INVESTMENTS					104,163
EXCESS OF REVENUES OVER EXPENDITURES		262,650	800,000	715,866	695,837
INTERFUND TRANSFER	5	(135,000)	135,000	(600,000)	600,000
FUND BALANCES, BEGINNING OF YEAR		551,589	6,755,616	435,723	5,459,779
FUND BALANCES, END OF YEAR		\$ 679,239	\$7,690,616	\$ 551,589	\$6,755,616

See notes to financial statements.

Notes to Financial Statements

1. Organization and Operations

Massachusetts Technology Development Corporation was created as a body politic and instrumentality of the Commonwealth of Massachusetts on October 19, 1978 pursuant to Chapter 497 of the Acts of 1978. The purpose of the Corporation is to provide financial and other assistance to innovative enterprises in Massachusetts that have the potential to expand and generate new jobs and tax revenues. The Corporation is governed by a Board of Directors consisting of eleven members, eight of whom are appointed by the Governor from the private sector and three of whom are public officials.

The Corporation is successor to the Massachusetts Science and Technology Foundation (which was simultaneously dissolved) and assumed all rights, assets and liabilities of the Foundation. Appropriations from the Commonwealth have been a significant source of funding for both the Corporation and its predecessor. The appropriation acts impose an obligation to reimburse the Commonwealth for amounts appropriated; however, in 1972, the Massachusetts Attorney General issued an opinion that "such continued funding by the Commonwealth suggests that the Legislature is mindful that the Foundation requires state support until such time as it is able to be self-supporting." Accordingly, the liability to the Commonwealth, if any, is not included in the accompanying financial statements. Appropriations since inception total \$2,268,810, including \$148,700 and \$175,000 for the years ended June 30, 1985 and 1984, respectively.

2. Summary of Significant Accounting Policies

Amortization and Depreciation

Leasehold improvements are stated at cost and are being amortized on a straight-line basis over five years. Office equipment is stated at cost and is being depreciated on a straight-line basis over estimated useful lives ranging from three to ten years.

Investments

Investments, consisting of notes receivable and investments in capital stock (Note 3), are recorded at cost. Upon the occurrence of a specific event which creates a decline in value which is determined to be other than temporary, the investment is written down and an investment loss is recognized. Interest earned is credited to the Corporation's General Support Funds. Gains on investments are credited to the Corporation's General Support Funds and losses are charged against Restricted Fund Balances. Repayments of principal and proceeds from the sale of equity investments (to the extent of the cost basis) remain in funds restricted for investment programs. During the year ended June 30, 1985, the Corporation realized gains on investments totaling \$130,227. The Corporation did not charge any amounts against restricted funds as losses on investments for the year ended June 30, 1985, and charged \$104,163 as such losses for the year ended June 30, 1984.

Income Taxes

The Corporation, as an instrumentality of the Commonwealth, is not required to pay federal or state income taxes.

3. Investment Programs

Sources of Funds

The Corporation's original investment funds were provided in 1979 by a \$2,000,000 grant (including \$28,000 in start-up costs) from the Economic Development Administration (EDA), U. S. Department of Commerce. Under this grant, the Corporation makes loans from a Revolving Loan Fund to eligible borrowers, defined as Massachusetts-based businesses with operations involving a significant amount of technology, which are located in EDA Title IV redevelopment areas and which meet the requirements of the Corporation's enabling act.

Notes to Financial Statements

3. Investment Programs (continued)

During the year ended June 30, 1981, the Corporation was awarded a \$1,000,000 grant under the Corporations for Innovation Development (CID) program of the U. S. Department of Commerce. The grant award was for the purpose of establishing another Revolving Loan Fund to assist in the creation and development of small, innovative high-technology companies in Massachusetts. In addition, the Commonwealth of Massachusetts appropriated \$1,000,000 to the Corporation as matching funds for the federal grant. The Commonwealth appropriation is restricted to a revolving equity investment fund.

For the years ended June 30, 1982, 1983, 1984 and 1985, the Commonwealth of Massachusetts appropriated additional funds of \$750,000, \$800,000, \$800,000, and \$800,000, respectively, to augment the Corporation's investment fund.

Investments

During the years ended June 30, 1985 and 1984, the Corporation made loans and equity investments in aggregate amounts of \$1,767,612 and \$2,268,090, respectively. Investments in the capital stock of some companies include certain put and call provisions. The terms of some notes include an equity participation feature such as warrants to purchase common stock or royalties on gross sales or on net profits as well as interest due monthly at rates varying from 10% to 17% per year. Repayment of principal is generally due in monthly installments ranging from thirty-six to sixty months commencing twelve to twenty-four months from the date of the loan. Such principal payments, however, are subordinated to the payment of certain senior debt of the borrowers.

A summary of investment activity is as follows:

	Notes Receivable	Equity Investments	Total
Investments made:			
1980 through 1983	\$2,620,000	\$ 855,000	\$ 3,475,000
1984	738,072	1,530,018	2,268,090
1985	1,031,281	736,331	1,767,612
Total investments	4,389,353	3,121,349	7,510,702
Less loan principal repayments and equity investment costs recovered	(1,733,083)	(137,666)	(1,870,749)
Loss on investments:			
1983	(62,221)		(62,221)
1984	(54,163)	(50,000)	(104,163)
1985	—	—	—
INVESTMENT BALANCE, JUNE 30,			
1985	<u>\$ 2,539,886</u>	<u>\$2,933,683</u>	<u>\$ 5,473,569</u>

During the year, the Corporation entered into agreements with certain portfolio companies which provide for the conversion of principal payments of notes receivable into equity as note payments become due. The Corporation may cease the converting of note payments at its own option. The principal balance of notes receivable subject to these agreements total approximately \$212,000 at June 30, 1985.

Notes to Financial Statements

4. General Support Expenditures

The Corporation's General Support Expenditures for the years ended June 30, 1985 and 1984 were as follows:

	1985	1984
Personnel costs	\$397,685	\$336,966
Professional expenses	28,785	42,468
Occupancy costs	74,056	60,005
Office services and supplies	41,666	36,628
Travel, meetings and conferences	20,043	21,945
Publications and advertising	21,738	23,134
Miscellaneous	2,917	2,728
Total expenditures	<u>\$586,890</u>	<u>\$523,874</u>

5. Restricted Cash—General Support

During the years ended June 30, 1985 and 1984, the Board of Directors voted to restrict a total of \$351,437 and \$316,437, respectively, of General Support funds for certain investment related activities, and for the years ended June 30, 1985 and 1984, to transfer \$135,000 and \$600,000, respectively, from General Support funds to Restricted for Investment Program funds.

6. Office Facility Lease

The Corporation has a lease commitment for office space extending through April 1988. The agreement provides for base rent plus operating and tax escalation clauses. Minimum base rental commitments under this agreement are: 1986, \$62,675; 1987, \$66,125; and 1988, \$57,500. Rent expense for the years ended June 30, 1985 and 1984 approximated \$55,550 and \$48,450, respectively.

7. Pension Plan

The Corporation has a defined contribution pension plan covering substantially all employees. Terms of the plan require the Corporation to make minimum annual contributions of 10% of salaries. Contributions charged to expense in 1985 and 1984 approximated \$28,300 and \$28,500, respectively.

Auditors' Opinion

Massachusetts Technology Development Corporation:

We have examined the balance sheets of Massachusetts Technology Development Corporation as of June 30, 1985 and 1984 and the related statements of revenues, expenditures, and changes in fund balances for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Corporation at June 30, 1985 and 1984 and its revenues, expenditures, and changes in fund balances for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Deloitte Hashin & Sells

July 19, 1985
Boston, Massachusetts

Legal Counsel
Palmer & Dodge
Boston, Massachusetts

Auditors
Deloitte Haskins & Sells
Boston, Massachusetts

Bankers
Shawmut Bank of Boston, N.A.
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